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a magazine for Shooters by Shooters

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THE COVER PHOTO

"Ad" Topperwein, famous exhibition shooter, sitting atop pile of 2 inch wood blocks at the Fair Grounds in San Antonio, Texas, in 1906, where he performed his greatest and never beaten shooting feat. In 12 days of shooting, he missed only nine out of 72,500 of these air-borne two-inch wooden blocks.

MAJOR JOHN W. HESSION

Maj. John W. Hession died February 1, 1962 in Clearwater, Florida, at the age of 84.

Maj. Hession was a long-time former shooting promotion manager for Winchester. He was the winner of many rifle shooting championships during his shooting career and was considered one of the finest rifle coaches in the country. He was the only person to win the Metropolitan (N. Y.) 1000 yard championship three times. In 1932 he won the British Wimbledon Cup. He set many shooting records during his active competitive days, especially in long range shooting.

Still active in shooting competition after his retirement in 1947, he won the Florida skeet shooting championship last year.

ADOLPH TOPPERWEIN

Adolph ("Ad") Topperwein, one of the world's most famous exhibition shooters, died March 4, 1962 in San Antonio, Texas, at the age of 92. He had been ill for about a month before his death.

Mr. Topperwein was an exhibition shooter for the Winchester Repeating Arms Company from 1901 until he retired in 1951. Since his retirement from Winchester and until shortly before his death, he had operated a shooting camp near San Antonio where, in spite of failing eyesight, he continued to teach people how to shoot.

His greatest shooting feat was performed at the Fair Grounds in San Antonio in 1906. In 12 days of shooting, he missed only nine out of 72,500 air-borne two-inch wooden blocks and decisively smashed the previous record of 60,000 out of 60,500 targets made by Dr. W. F. Carver of Buffalo Bill's Wild West Show.

MORE "MONKEYING AROUND" by Phil Teachout

Homer S. Powley of Cleveland, Ohio, for whose ballistics know-how I have much respect, is not "sold" on the idea that empty noses (deep cavity hollow points) in rifle bullets have any great affect on the accuracy of bullets. In a fairly recent letter he stated:

"Concerning your bullets, I still believe the chief virtue is the carefulness with which they are made. There is the possi-

bility that if you did not fill up the cylindrical portion with enough lead, the center of gravity might be entirely too far back and the bullets would tumble. Otherwise, you are only changing sectional density."

I can't argue with his first point. I do not consider myself any expert at bullet making. I do think I am reasonably careful in my jacketed bullet making operations but I am no more a "perfectionist" at this than I am at my shooting. I have made quite a few thousands of bullets in several different makes and types of bullet making equipment, nearly all of the deep cavity hollow-point type bullets. I have had good "greenhorn's luck" and the bullets I have made have in my guns given accuracy that has been quite satisfactory to me and, in .30 cal., they have performed quite well for several other people, in their rifles.

Some two or three months ago my bump-of-curiosity got to itching and I have been doing some monkeying around making sample lots of bullets with shallower point cavities (longer and heavier lead cores in the same length jackets), even to having the lead cores entirely fill the point to the tip end of the jacket. Have monkeyed along this line with both .25 and .30 caliber bullets. What comparative test shooting I have done to date has been in far from favorable winter weather. While I have not done enough of this shooting, under good enough shooting conditions, to feel that I should even start to draw conclusions, the results to date tend to indicate that any accuracy differences there may be between deep cavity, shallow cavity or lead core to tip hand-swaged bullets may be so small as to be mighty hard for an Average-Joe shooter to detect. That is why I can't now argue with Powley's first point.

His second point, that of getting center of gravity so far to the rear as to cause fumbling bullets, seemed quite reasonable and expectable. However, that bump-of-curiosity of mine got irritated again from wondering how far back that center of gravity could go before completely upsetting the bullet balance in flight. Looked like I'd have to try to find that out for myself, so off I go again with some more monkeying around.

I started experimenting with .25 cal. since at that time that happened to be the only caliber for which I had a supply of jackets on hand. The jackets used were Sierra .860 inch long, the same that my main supply of 83 gr. bullets are made in and were used for the heavier bullets I had been monkeying with. The rifle used for the comparative shooting is a medium weight sporter in standard .257 Roberts caliber with a 24 inch long, 14 inch twist, 8 groove barrel on Mexican Mauser action, topped with a Lyman All-American 10X scope. The normal average 5-shot grouping of this rifle with the 83 gr. home-made bullets is between 1 and 1½ minute-of-angle.

Really good shooting conditions during the winter in this area are extremely rare. The place where I do my winter shooting is no aid to tight grouping. My firing point is in an open front shed with a southern exposure, which does give protection from the cold northerly winds but does not give any indication of the velocity or direction of the wind, and there usually is some wind. Shooting is in a southerly direction which does not give the best light on the targets. The white expanse of snow covered meadow between firing point and target doesn't have a moving thing to indicate wind direction or velocity of wind except for occasional drifting snow or snow flakes. The only mirage to be seen is that from a warm-

ing rifle barrel and that only makes sighting difficult. Testing under these conditions can only be comparative for the results from any one shooting session, and even that is not always completely reliable since conditions can and often do change greatly during an afternoon's shooting.

I started this experimenting by making small trial batches of 75 and 70 grain bullets and loaded them ahead of 44 grs. of 4064 powder. I had earlier made and shot some 80 gr. bullets which with the same powder charge of 48 grs. of 4350 had given similar average accuracy, point of impact, etc. as my 83 gr. bullets, and I had 20 of those bullets and charge already loaded. There was no greater difference in group size as between the different weight bullets and loads at both 100 and 200 yards than could normally be expected between an equal number of groups all with the same load. Had the firing all been at one target and the same point of aim the groups from all three bullets would have merged into one another at both 100 and 200 yards.

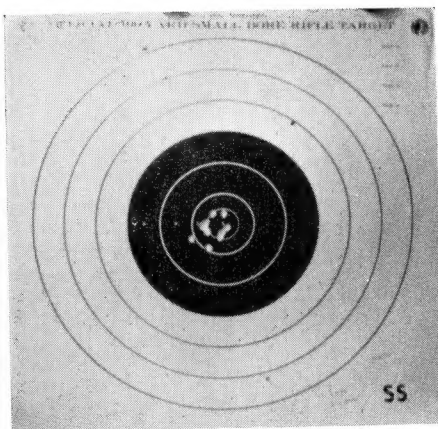
I next made small trial batches of 65 gr. and 61.5 gr. bullets and increased the powder charge to 45 grs. of 4064. (Reason for the odd 61.5 gr. bullet weight was that I cut the lead wire cores that weight to allow for extrusion of excess lead in the core forming die BUT these cores were so short that the top of the punch went past the "bleed hole" in the forming die and I had to form the cores by "feel." A good wire cutter resulted in very few core discards because of weight variation.) The accuracy of both the 65 gr. and 61.5 gr. bullets was at least equal to that from my normal load with the 83 gr. bullet, fired on the same day at 100 yards.

Since 60 grs. was the lightest bullet I could conveniently make in the .860" long jackets, I made more in that weight and continued testing with the 45 grs. of 4064 load at 100, 200 and 300 yds. That load was later chronographed at 3720 fps average for five shots. Accuracy has continued to be favorably comparable to other loads in my rifle. It is a flat shooting load; the center of impact at 200 yards is approximately 3 inches lower than at 100 yards for the same sight setting. It does seem to be a little more sensitive to wind than the heavier bullets.

The top of the core in these 60 gr. bullets is well behind the center of length of the .860" long jackets. I suspected this bullet was getting close to the tumbling point, and that it probably would tumble at lower velocities. The easy way for finding that out seemed to be to turn to experimenting with reduced loads.

I started with a real peewee load of 10.5 grs. of 4759 powder. As a control I loaded some of my 83 gr. bullets with the same charge. Five shots with the 60 gr. bullet at a 14" X 20" target at 100 yards failed to get a bullet print on the target. At an estimated 50 yards the five 60 gr. bullets hit the 12" wide board that held a target but all of them hit sideways—keyholes. The 83 gr. bullets with the same powder charge made a passable 3" group at 100 yards but the bullet prints showed a slight tipping.

A charge of 12 grs. 4759 got one keyhole hit on the target from 5 shots at 100 yards. Increasing to 14 grs. got all 5 shots on the target, but all over it and still partial keyholes and bad tips. With 16 grs. the bullet prints were still showing some tipping but gave a group of 4" for 5 shots. With an 18 gr. charge of 4759 the bullets were stabilized, gave normal round bullet prints and a 5 shot group of just over an inch. Subsequent shooting with this 18 gr.



Ten shot group fired at 100 yards from rest with .257 Roberts rifle. Load used for this group consisted of a 60 gr. bullet with very deep hollow point cavity made in .860 inch jacket with 45 grs. 4064 powder charge. Group measured 1.295 inch.



Another ten shot group at 100 yds. from the .257 Roberts rifle. This one measuring 1.50" was made with a load of 96 gr. bullet made in the .860" jackets, having a very shallow hollow point cavity, and powder charge of 40 grs. 4064. The two targets were fired within 30 minutes of each other on a winter day that featured snow squalls and gusty wind. The groups illustrate the similarity of accuracy obtained from bullets of opposite extreme of weight and cavity depth, made in the same length jackets.

charge of 4759 with the 60 gr. bullet has continued to give acceptable accuracy at 100 yards and this seems to be the lowest velocity that will reliably stabilize this bullet. This load chronographed 2484 fps average velocity for 5 shots. The velocity recordings were obtained with an Avtron chronograph.

The experimenting with the .25 caliber has prompted me to carry on a similar series with .30 caliber. This has only started but beginning results are similar to those with the .25.

I had obtained some of the special .30 cal. Sierra bullets that Kenru Reloading Service had made, in the 1.150" length. Started in by making light weight (115 grs.) bullets with very deep hollow cavities. These bullets are comparable to the 60 gr. .25 cal. bullets in design, core depth, center of gravity position, etc. Loaded ahead of 56 grs. 4064 powder in .30/06 cases, the chronographed velocity was 3270 fps average for 5 shots. Range shooting to date in my Springfield NRA Sporter has given accuracy at least equal to any load I have ever fired in this rifle. More testing with various weight bullets made in the same length jackets will be carried on and will be reported later.

The foregoing is merely the report of

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results obtained to date by one person with his guns, bullet-making, loading and shooting. It will require a great deal more experimenting and testing before it would be reasonably safe to start drawing any general conclusions. However, some points do stand out as "possibilities" or even "probabilities."

It would seem that Homer Powley may be generally right on both points he made. This was not unexpected.

I have not found out how far back the center of gravity of a bullet must be to make it impossible to fire it without its tumbling. However, the experience with the reduced loads in the .257 would indicate that the 60 gr. bullet made in the .860" long jackets was approaching the point of absolute unbalance.

To date, the 60 gr. .25 cal. bullets and the 115 gr. 30 cal. bullets have given me as good or better accuracy than I have ever been able to obtain with available short bullets in similar weights.

It may be that the better exterior form and dimensions of the light bullets in long jackets contribute something to the accuracy of what appears to be an unbalanced bullet; but that is pure guessing on my part and may be quite wrong.

It is essential that anyone who wants to experiment with such odd-ball bullets be a do-it-yourself home bullet maker or find some lenient, cooperative custom bullet maker as a source of supply. Generally, special bullets in small trial lots do not come cheap from custom bullet makers.

Too, it is a bit more work to make the very deep cavity bullets in long jackets. It requires either special or improvised punches for such deep seating of cores in the long jackets as well as possibly some adaptations and coniving in the operations of the bullet making. So, the odd-ball bullets will have to demonstrate some very real superiority to warrant making them for other than experimental purposes.

One or two points have shown up in this experimenting I have been doing that have upset some of my thinking and seem to warrant separate experiments to try to determine "what is what." I plan to do those at a later time and if results seem of any general interest, I'll report them.

TOURNAMENT CIRCUIT

METROPOLITAN 50 SHOT CHAMPIONSHIP

Sam Burkhalter of Stamford, Conn., won the 1962 Gold Medal for the annual classic of the Metropolitan Rifle League, the Fifty Shot Championship. The match course of fire is 50 shots prone at 100 yards, indoors, with any sights. The match was fired on the II Corps Armory range in Brooklyn, New York.

Burkhalter scored a possible 500 with 45 X's. He beat John Holle of Roseland, N. J. by only two X's and Ransford Triggs of Madison, N. J. by three X's. The other

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Albany, New York: Troop 36 (Vincen-tian Institute) B. S. A. Second Annual 1000 yard Registered Tournament; Karner Range, Albany County, New York, September 15 and 16, 1962. D. C. Reilly, 445 Western Avenue, Albany 3, New York.

10 of the 83 competitors were: W. Tomsen 500-39, D. Miner 500-37, R. Morgan 500-37, L. Samsel 500-37, S. Tekulsky 500-36, F. Boyd 500-36, D. Schimmel 500-36, W. Heil 500-31, L. Norton 500-30 and A. Pearsall 500-29.

Roy Oster, Upper Darby, Pa. topped the twenty 499's with 44 X's. Barbara Norton, Bridgeport, Conn., with a 499-31, won the Hi Lady award.

(Continued on Page Six)

S & W .38 MASTER, MODEL 52

By Kent Bellah

Smith & Wesson's 9mm auto pistol, Model 39, introduced in 1954, was a most advanced military type, the nation's first double action auto. The 9mm Luger (Parabellum, "pistol for war") cartridge is used by more nations than any other. Advantages over our .45 Army Mule are many. Most GI's can shoot it better. It doesn't scare a rookie half to death. More ammo can be carried in less space. Weighing half as much it saves many tons of critical materials, in wartime. Less weight is an advantage when transporting many tons of ammo to far corners of the earth under fire, and to front lines. It has a longer accurate range. Ammo is available around the world from friend or foe. Perhaps it will be our GI round someday.

Smith & Wesson's new .38 Master, Model 52, introduced in December, 1961, is on the Model 39 frame, an excellent choice for the slick son-of-a-gun. Weight was increased from 26.5 oz. to a decent 41 oz., with all steel construction and a 5" barrel. The only important feature is that I can shoot better 50 yard groups than with any .38 pistol or revolver in my battery. This with factory walnut stocks. No doubt groups will tighten still more when my custom handles arrive.

Did S & W cut the throat of their world's record setting K-38 for competition? For me they did. I've been a K-38 fan for years, but the revolvers can't compete with the .38 Master at 50 yards in timed or rapid fire. Many revolver fans will switch to the Master, for the simple reason they can shoot better scores.

A chambered barrel has an accuracy advantage over a six chamber cylinder, and a more uniform velocity spread. With an auto loader you don't change your hold in cocking, quite an advantage in hitting accuracy and speed. You concentrate on the sight picture and squeeze, ignoring mechanical operation, a big advantage under tension. Any revolver is a handicap, but until recently no fine .38 production pistol was available. Some conversions had a short accuracy life, and some didn't function perfectly. All were expensive.

The .38 Master is ready to go, right out of the box. I believe it's the first production pistol to be factory tuned to shoot 10-ring groups or better at 50 yards with factory ammo from a machine rest. It doesn't need any custom work. I can't find anything a pistolsmith could do to improve it. It should retain accuracy a long, long time.

My good friends, ex-Deputy U. S. Marshal R. B. Smith, and Exhibition Shooter D. L. Cooper, gave it an AOK in every way. These lads know competitive shooting, as well as practical shooting. They can outshoot me, and I value their opinions, very highly. They agree the .38 Master will help make some Masters!

S & W worked on it for years to eliminate "bugs" before starting formal production. (That's a reverse switch for some guns!) They solved the many problems. One was making rim cases and flush bullets function perfectly with target charges. My gun has never jammed with a large variety of reloads from too light to too heavy, or with Remington Targetmaster and Western Super Match ammo. This is remarkable! Due perhaps to the superb interior fitting and finishing, and a super slick bore. The trigger pull is the best center fire I own, precision hand fitted.

It fires with a locked breech and recoiling barrel. S & W's new Micrometer Click rear sight has a $\frac{1}{8}$ " notch in a wide



SMITH & WESSON 38 MASTER, Model 52 Target Pistol.

slide, a most excellent sight. Arrows indicate which way to turn the coin slotted adjustment screws to save goofing and ammo. Each click moves the bullet $\frac{1}{2}$ " windage or 1" elevation at 50 yards. The durable S & W Bright Blue is in beautifully polished steel, matted where needed to prevent glare.

Dry firing with the safety on doesn't wham the firing pin, a fine feature to improve scores. The steel hammer block is positive, but only an idiot would dry fire a loaded gun that wasn't pointed in a safe direction. A magazine cut-off prevents firing a chambered round when the magazine is disengaged from the magazine catch. You can unload the chamber with the thumb safety on. It's a safe gun.

You can shoot double action for defense training by turning down the double action cut-off screw in the frame. You'll be surprised how well it hits with D. A. fire. The \$150.00 price is not high for a superb factory tuned target pistol.

Sloppy reloads won't equal factory fodder. Load 'em right! Trim hulls to a uniform length. Mine happen to be 1.142. Ream mouths a bit heavy with an Inside-Outside Deburring Tool to reduce shaving lead in seating bullets and in firing. Discard any cases that show non-uniform walls after trimming and before deburring. Bell the mouths slightly. If you load on a Phelps or Star machine, or a tool such as the RCBS A-2, that adjusts to seat primers in relation to the head face, set it to seat your brand of primers.

CCI (No. 500) primers are not critical in seating depth, which is an advantage if you seat by feel. They are OK from flush to .008 low (or even more variation on our drop test), but are best seated about .003 low. Some makes should be .008 low to increase sensitivity. CCI's have an advantage for reloads.

Some shooters handicap themselves with non-uniform bullets cast of scrap metal for economy. A good commercial mix is best. Illinois Bullet Alloy No. 7 is excellent. It casts well and drops freely, running extremely uniform castings. I place a much higher value on these qualities than on bullet design. Too much variation indicates a non-uniform alloy, or that you are not a good caster, or both. Correctly cast, Hensley & Gibbs No. 50 and 50-BB (Bevel Base) types work perfectly with 2.5 or 2.7 grains Bullseye. So does the Norma Match Wadcutter. All of these bullets functioned with 2.3 to 3.0 grains, adequate spread for anyone.

Bullseye seems to work better than 3.2 grains 5066, or 2.5 and 2.7 grains Du Pont Hi-Skor. (The latter is shotshell powder. So you'll know how much is too much, 4.0 grains Hi-Skor is excessive. Cases are not ruptured in the .38 Master, but stick and start head separations in a revolver.)

Flat base bullets for my .38 Master perform best when sized .356 for my .3546 groove diameter. A .355 and .3555- also shoots well. Moulds should throw casting very close to final size. I prefer no larger than .0005. Oversize castings, and especially a loose jointed sizer, give lousy bullets, and are major causes of sloppy reloads, no matter how uniform the weight.

There is no better machine than the SAECO Lubri-Sizer. Bullets are sized true, with a bearing surface that looks like chrome plating. A Phelps sizer is good for mass production. Perfect Lube is excellent.

Some cheap dies won't make decent reloads. Quality dies should size cases enough to hold bullets friction tight, with no visible bulge at the base of the bullet, on the case. Dies, press and shell holder must be in perfect alignment. Seat bullets slowly, flush with the case mouth, after starting with your fingers, with the bullet as straight as possible. Use one make and lot of cases. Those without a cannellure are best, especially if the bullet base seats below the groove. I prefer a very light crimp, or none at all.

You may want to adjust the charge for your gun and range, or adjust the bullet diameter for your particular gun. The gun won't loosen up after thousands of test loads, so don't be afraid to work until you have the ultimate. Use the lightest charge that gives best accuracy.

Norma's Match Wadcutter has a deep "hollow tail," as they call it, similar to the famous Ed McGivern design. McGivern, probably the best practical handgunner of all time, set records that have never been approached before or since, in the 1930's. The late Phil Sharpe, who knew more about reloading in his day than any other man, told me, "Conical base bullets are useless." Phil was wrong on this one point, as proved by records set over the years, but he knew more than I did about reloading. The shooting world lost a friend when Phil passed away. I believe Norma's hollow base, that increases case capacity to compensate, accounts for their excellent accuracy in over and undersize bores. The W-W and R-P people use hollow base pills in their factory loads, generally about .003 smaller than Norma's.

THE EFFECT OF MERCURY ON BRASS CARTRIDGE CASES

By Fred W. Hallberg

A cartridge case that has absorbed mercury is inoculated with an incurable disease. Once absorbed mercury will cause the case to rot and, in time, to completely disintegrate. Contamination is ordinarily caused by the use of mercuric primers but that does not mean that all cases fired with such primers are seriously contaminated. Sometimes a particular manufacturing process will leave a resistant coating within the case. This reduces and resists contamination to some extent but it can never completely eliminate it. Old type black powder cartridges often left so much residue on the inside surface that only the vicinity of the flash hole was affected by the mercuric blast. That may be why the web at the bottom of the primer pocket of such cases is usually fractured and broken.

Cartridge brass is 70% copper and 30% zinc. The metal mass is made up of crystals—large crystals when the metal is soft and small and elongated when it is hard and strained. If you polish a bit of the surface in the vicinity of the shoulder of a case and examine it under a microscope, the individual crystals become readily visible. The crystals at that point of the case will be quite large and will look somewhat like stones in a stone wall that have been carefully fitted together and mortared by a skilled stone mason. The crystals within an area beginning one quarter inch below the shoulder and continuing to the mouth will be larger than those seen elsewhere. As you move towards the head of the case, the crystals gradually become smaller and, finally, those within the head will appear stretched and strained. Such construction is necessary because the case must act as an obturating cup, or gasket, to prevent the gases from traveling rearward through the action and into your face. While the entire case will be fire-formed to fit the chamber, the mouth end is designed to most readily react under pressure and the head is made strong and hard enough to resist deformation. This simple requirement is always a most difficult one to get across to new production engineers in a cartridge production plant. To many of them, it should be just as easy to draw a cartridge case as it is to draw a fountain pen casing.

Another and a most important factor in cartridge case production requires that the crystals in the neck and shoulder be of the large soft variety. The case neck is stressed when the bullet is seated and it will continue stressed as long as the bullet remains in the neck. Military ammunition must withstand long periods of storage under all conditions. If the neck is not sufficiently soft to withstand such long time stress, it will crack and render the cartridge defective. To further ensure against such cracking, the shoulder and neck receive an additional annealing operation after forming. The dark area on the shoulder and neck of all unfired military .30 caliber ammunition is visible proof that the case has been properly annealed. This discoloration is usually removed from commercial ammunition but removal is not permitted on ammunition manufactured for the military.

Even brass that is not subject to external stress will tend to crack during the passage of time. If ever you have an opportunity to purchase antique brass ornaments, it may be wise to consider them suspect if cracks are not present. Old brass figures such as statues often show longitudinal cracks similar to old wood. Old brass (not bronze) cannon should be handled with care.

Now then, since the brass case is subject to the stresses of holding the bullet, to the stresses of long storage, and the stresses of firing, we must try to discover in advance whether or not the cartridge can be expected to fulfill its requirements. How do we do it? You guessed it. We treat a certain number from each manufactured lot with mercury. At least, that was the procedure up to about 1956. Today, I believe, the mercury test has been more or less eliminated.

We have seen how a brass structure resembles a stone wall with well-fitted stones held together with mortar. If we can find some way of loosening the mortar, the stone wall will crumble. That is exactly what happens when mercury penetrates a piece of brass. It seeps into the space between the crystals and causes them to lose their cohesiveness, or adhesiveness, one to the other. The mercury test is designed to show up weak spots within the case by loosening the crystals and permitting them to relax in the direction of an unwanted stress. It eliminates the necessity of waiting ten years for the defect to show up or for the case to break open in a shorter period of time under the stress of firing.

As I recall the mercury test, it is processed along somewhat the following lines:

a) Of the quantity to be tested, one half of the cartridges will have the bullets pulled, the powder removed, and the primer fired. The other half will remain in their finished, loaded state.

b) Both loaded and empty cases are pickled in a forty percent aqueous solution of nitric acid (by volume) for thirty seconds.

c) Rinse in running water and remove excess water.

d) Submerge both loaded and unloaded cartridges for fifteen minutes in a mercurous nitrate solution containing ten grams mercurous nitrate and ten milliliters of nitric acid (1.42 specific gravity) per liter of solution.

e) Rinse in water and remove excess water.

f) Both cartridges and cases will now look as if they had been nickel plated. The loaded cartridges are examined under a 10 to 15 power microscope by running them back and forth and turning them in a small fixture placed under the lens.

g) The empty cases are heated on a flat skillet type of surface (sort of a frying operation) to remove the nickel-like mercuric coating. Stay away from the vapors arising from this heating operation. The cases are then examined as above.

h) If a split is discovered, the entire cartridge lot is set aside until management can decide whether or not to accept it.

Note: Should you desire to try this test, make certain you do not touch the mercury coated cases without rubber gloves and that you do not breathe in any of the vapors. Best of all—leave it alone.

I have tried to reload cases picked up at Camp Perry that had originally been fired with mercuric primers. Fortunately, I took the precaution to use reduced loads only. All tests produced split cases. As far as I am concerned, mercury is poison not only to brass but also to man.

THE SAECO MATCH-PRECISION RELOADING TOOL

When I first saw the announcement of the SAECO Match-Precision Reloading Tool and the "Stubby Dies" I didn't get very excited—rather hastily jumping to the conclusion the outfit was just another new gimmick to sell to reloaders.

Now, after several weeks' use of one of the outfits, I know how wrong I was.

(Continued on Page Six)

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BOX PS 3

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SOUTH LANSING, NEW YORK
Div. of General Sporting Goods Corp.
In Canada: Globe Firearms Ltd., Ottawa
George L. McNicol Ltd., Vancouver

The Saeco Match-Precision Reloading Tool

(Continued from Page Five)

Both the loading tool (press) and the Stubby Dies are really new in concept and performance, and are mighty sensible and practical for the purpose they were designed for—reloading rifle cartridges which are to be neck resized only. Pistol cartridge cases are full length resized but two Stubby Dies do the job that requires three dies in conventional die sets. Since I don't reload pistol cartridges I can't make any first hand report on that job.

The SAECO tool resembles other conventional C-type loading presses in outward appearance only. It has a sturdy cast metal frame, a ram connected to operating handle by toggle and a threaded hole in top of frame for the dies.

The ram is hollow its full length with a shoulder the proper distance from the top to support the priming punch when it is in use. In decapping, the spent primers drop through the ram and into a waste basket or other receptacle placed under the press.

Since the Stubby Dies are designed to use with the several cartridge cases of the same caliber, the working adjustments are made by control of the ram travel. This screw, threaded through the top of the press is accomplished by means of a long stop frame behind the die, which contacts the rear of the wide (1½") shell holder, and is locked in adjustment by a set screw through the side of the press frame.

The Stubby Dies are only long enough to accommodate the longest necks of the cartridge cases for a given caliber and provide firm support for the decapping and expander button stem in the resizer die and seating stem in the bullet seating die. It looks odd to see the decapping stem sticking way below the die body but it is sturdy and does its job well. It is claimed that the rifle decapper will easily remove the crimped-in primers from military cartridges, but I'll stick to my hammer and hardened steel punch pin for that job.

The neck sizing and decapping is done in the top part of the ram travel when leverage is at its strongest. For the longer cartridge cases (over 2.23"—.257 Robts) an extension tube bushing is supplied for the sizing die. Bullet seating is done at less than full ram travel, the travel depending on cartridge length and controlled by the ram-stop screw.

For repriming, the shell holder is removed, priming punch dropped into place in top of ram and shell holder replaced. A pin is then pushed through a hole in the frame and a slightly elongated hole in the ram. This restricts the ram travel to only enough to accomplish the primer seating and requires only a very small movement of the press handle. I now have five different rigs for seating primers in rifle cases and, in my opinion, this SAECO rig is the slickest of the lot.

While the SAECO press is engineered especially for the Stubby Dies, it will accept all conventional ¾ X 14 dies. When conventional dies are to be used the ram-stop adjusting screw is removed and the dies adjusted to utilize the full ram stroke, in the usual manner.

The SAECO tool with one set of Stubby Dies is priced competitively with other quality reloading outfits. The Stubby Die sets cost about ¾ the price of similar high quality conventional die sets. The real economy of the Stubby Dies is that the one set of a given caliber will handle the reloading of the various cartridge cases of that caliber; the only extras needed being possibly one or more shell holders to fit the different case heads.

In my opinion, this is a high quality,

Tournament Circuit

(Continued from Page Three)

This Metropolitan Rifle League 50 Shot Indoor Championship was first fired in 1922 and that first match was won with a score of 492. The match was first won with a possible 500 score in 1930, Charles H. Johnson winning with a 500-36X score and Edward Smelter was runnerup with another possible 500. With the exception of two or three War years when Armory ranges were not available and the Match had to be fired on the Swiss Rifle Club's 50 meter indoor range, the 50 Shot Championship has been fired annually at 100 yards.

CALIFORNIA INTERNATIONAL COURSE MATCH

The Fresno Rifle Club conducted an International Rifle Course tournament on February 23, 24 and 25. Twenty-five competed in the 300 meter matches Friday and Saturday and thirty-one in the 50 meter events on Sunday.

Emmett Duncan, MCTU, San Diego, Calif. won the Free Rifle 300 meter course match with a score of 1113, shooting 393 prone, 365 kneeling and 355 standing. His team-mate, James Hill, was runner-up with 1104. John Bertva, Lackland AFB, Texas was in third spot with 1097. High civilians were Kenneth Hayes, Fresno (9th) 962, and Dr. Paul Livingston, Castro Valley (10th) 952.

In the civilian half course division, Chris Peterson, Albany, was high with 540.

James Hill, MCTU, won the 50 meter Free Rifle match on Sunday, shooting 390 prone, 366 kneeling and 362 standing for total of 1118. Ed Caygle, Lackland AFB, Texas, was runner-up with 1104 and rounding out the top five were David I. Boyd, MCTU, 1099, Ray H. Green, MCTU, 1098, and Chris Peterson 1096.

In the civilian match rifle division, Fresno shooters Dennis Behrens (1028) and Joe Specht (1002) took the top spots.

CALIFORNIA SMALLBORE RIFLE SECTIONAL

One hundred six competitors fired in the NRA Smallbore Rifle Sectional tournament at Willows, Calif., on February 24th and 25th. Due to the fact that the International try-outs were held at Fresno, Calif., some of the competitors were forced to do some fast traveling. The ones that could do so fired at Willows Saturday morning and then to Fresno for Sunday, or vice versa. Due to this fact the attendance at Willows was somewhat smaller this year.

A repeat winner this year was Bob Wood of Ukiah, Calif. who fired a 200-18x prone, 200-19x sitting, 200-16x kneeling and a 190 offhand for an aggregate total of 790. Others of the top ranking ten were: Ken Cummins 789, Vic Zimin 787, Adrian Landberg 785, Rod Palmer 784, Irvin Brown 784, Howard Forster 783, Alvin Rupe 780, Bob Miller 780, Fred Bazlen 780, Duane Jenner 780.

High Expert was Ludd Johnson with 779, High Sharpshooter, Jim Tousey 765, and high Marksman, Gordon Pointer 756. High Junior and winner of the Bud Jenson Memorial Trophy was Jim McDonald of Willows. His 772 aggregate was second high in Expert class but his outstanding feat was winning the offhand match with a 194 score.

Team match winner was Ukiah Rifle Club No. 1 team of Ken Cummins 399, Bob Wood 395, Rod Palmer 393 and Irvin Brown 392, their 1579 team total beat the Willows Rifle Club No. 1 team by 26 points.

very practical set of reloading equipment.

P. H. T.

RELATIVITY

By Ted Smith

Not too long ago I read an article concerning a theory by a man named Einstein. This theory had to do with the problem of relativity and while I don't pretend that I understood it, the jist of the matter seemed that we human mortals go about the problems of life continually drawing comparisons and setting standards.

Circumstances often alter a given subject. For instance, take the size of a man. We might say so-and-so is rather tall. In this we compare him with what we might feel to be an average man; we compare and find him tall. Now take the same man in pigmy land; a pigmy might feel he is a giant. On the average college basketball team he might be called "Shorty." It's all a matter of relation.

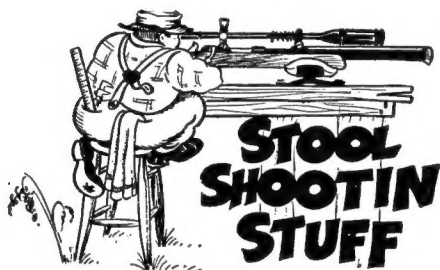
I could go on and on drawing examples such as these but it isn't necessary. I did think that I should have one real example, however, so I made an effort to make this possible. A young friend of mine went shooting the other morning. The course of fire was 20 shots offhand at 200 yards. I knew his average ability to be an 85. If he fired a 75, that would be poor, 85 average, a 90 would be real good. When he returned I asked him how he did. His answer was "Gosh, Dad, I was away out." I'm a sane man. I'm writing an article for intelligent people. I have followed the rules. I bring forth a theory, advance certain facts, bring it to the proper conclusion with a good clincher; 75 is poor, 85 is average, 90 is good—but "way out, Dad!"—Holy Cow!

However that may be, if the theory is right then it should be possible to adapt it to our shooting. Let's say we have just bought a new heavy varmintier which we wish to work up for a bench rest rifle. According to our theory it is now necessary to establish the average ability of this rifle. Since we will be working towards improving the accuracy, we have to have a basis upon which to improve. To do this we look in the book and pick out a good stand-bination. We load up twenty-five rounds and load for this rifle, case and caliber command and proceed to the bench where we fire the whole twenty-five in groups of five shots each. This may be the hardest thing you ever did because about along at the end of the second group you may see that the darn thing is doing lousy. Lousy? By what standards? I know you've been reading PS and you know what the average size of a good group from a good varmintier is, so now you're ready to go home and try something different.

Well, this isn't an average rifle, and an average group isn't going to be good enough. This is the rifle you're going to win that next match with and right now you want to establish what kind of a group it is capable of firing, as a basis for future record all the data—case, primer, bullet, development. Fire the whole five groups, powder charge, seating depth; the works. Now go home and change **one** factor. I don't care if it's primer, bedding, or the sheets on your bed. Make sure you only change **one** thing and don't make any drastic changes. If you change, for instance, the powder and the primer and fire the best group you ever fired, you will still have to go back and test out each separately to make sure you can't do better. Always, always fire out the complete test string. I have had test groups where the first group fired was very bad but ended up with an improved aggregate.

Above all else, resist the temptation to jump from combination to combination looking for a miracle load. I don't know what the odds are but they are against you

ever finding one, or recognizing it when you do. Establish an average and work towards improving it; and write it down so you won't forget it. Remember that gains will be small. Be happy when you improve your group by even a thousandth of an inch. Be a dreamer and set your sights on a star; but be realistic and set your mind towards improving that average. (Stick with old Einstein and who knows but someday you may be "Away out, Dad." There, I said it and I'm glad!



Dear Phil:

When I went to the mail box on a dreary winter day and found my February copy of Precision Shooting, on the cover of which was that nice picture of Al Walters, I thought that the day had suddenly turned bright and shiny and after all, it couldn't be long until we were all out shooting with one another again. Not only does Al shoot well, but he is one of the nicest guys a fellow can meet and I can see how his Region chose him as its Director. He seriously considers the problems of the game and seems as tireless in improving harmony as he is in improving his own shooting ability.

It seems as if the Directors are continually faced with the problem of trying to blend together one mix of ideas that will be satisfactory to all out of the lot that are put in the hopper. Some of those that are dropped in are vague and a few of them have been tried before and found wanting. Some are new and radical. Others are the suggestions of those who want their own way regardless of the opinion of others; however, they all must be considered and weighed, and by and large, our Directors, Deputy Directors and President are doing us shooters a wonderful service and devoting a lot of time and interest to it.

Almost every day I receive letters that indicate the writers do not realize that all of the changes talked about among shooters in small groups or large are merely items of conversation until they are presented by one of the Directors at a proper meeting and in conformance with our by-laws. This is an important feature to recognize because a suggestion may or may not be adopted so it would be silly to go out and get new guns made or an old one altered just because some ideas are being tossed around in the wind.

Not only did the magazine cover please me, but the entire contents made some mighty good reading and I think there are enough good ideas in this one issue to keep us all enthusiastic about the coming shooting season. I generally read my issue from cover to cover and I quickly came to Les Bowman's letter in which he takes me apart a little bit for having doubted the standing of a .222 Mag/6 mm as a hunting gun. I bow to his superior experience in the hunting field as there can be no comparison between his and mine. How silly I would be to talk of elk hunting when I have never even seen one in the woods. I can see that they can be killed with a little 6 m/m or a 22 long rifle if the situation is ideal; however I'm not about to make one up for use in hunting in the Maine woods.

I have heard of a lot of moose that have been killed in Maine with a 22 pistol and for a long time, the Hornet was a favorite weapon with the poachers. As I said before, Les undoubtedly has the hunting experience but what I wished to point out in that earlier letter that brought his answer was the fact that accuracy to some extent is relative to the disturbance or lack thereof of the firing piece at time of recoil and you, yourself, Phil have often pointed out that every shooting game and contestant will to some extent succumb to evolution as various ideas and technological improvements are introduced and proved.

Mr. Bowman's letter to me was full of ideas and it showed that he was beginning to display the early symptoms of being bitten by the benchrest shooting bug. He has acquired some nice rifles and three of his instructors that I know; viz. Ed McNally, Mike Walker and Warren Page are well qualified to get him off on the right track. I presume that he would enjoy taking part in some of our shoots just as we all wish for the opportunity to take part in some of those interesting hunts in his part of the country.

The interesting experiments by Al Angerman made good reading and so did those by Dan Hufnail. It's just the kind of stuff that we need in the magazine and I hope that it encourages others to experimentation and, of course, the value to us all will be the writings of those experiments. Several days before I wrote this letter, I called Al on the telephone and I am sure you will all be glad to hear that he has made a fine recovery and is now back at work. Because of his vocational training, Al is eminently well fitted to analyze statistics, conditions and performances and he has agreed to carefully go over the questionnaires that are received from the survey that we are making through a page in this magazine.

We have tried to present a few questions that will form the basis for future action but please remember, as I said earlier in this letter, the action does not become effective merely because of a preponderance of "fors" or "against" as they show up during the analysis of the questionnaires. We all can depend on Al to do the job well. Whether you are an active competitor or not even a member of the NBRSA, we solicit your efforts in filling out this questionnaire and if you need more space and wish to expound further on your ideas and remarks, include them on a separate piece of paper and Al will see that they are forwarded to the proper authorities for further consideration.

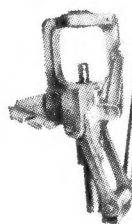
We who attended the winter meeting at Elmira had already heard of Paul Gottschall's custom made machine for improving the uniformity of the wall thickness of the jackets. Paul has been frank enough to say that the results are yet to be proven by shooting tests. This is always the case. A lot of shooting is really required to establish definite proof. We have all from time to time come up with innovations or ideas that seem to answer our long recognized problems and sometimes the first experiments please us but, after a while, we found that the good results first received were only coincidental.

Look back if you will to earlier days and see how experimenters cut off the fore ends of their rifles so they could more readily rest the barrel on the forward sandbag at a point nearer the receiver. A few years later, some fellows who were winning (Ralph Pride) were using full length stocks. Electrical bedders, mechanical and hydraulic bedders had their day and many of us

(Continued on Page Fourteen)

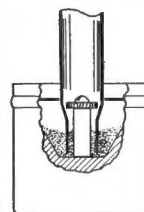
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National Bench Rest Shooters Association, Inc.

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NBRSA MEMBERSHIP DUES:

Individual annual dues \$5.00 (includes magazine subscription for membership term). Associate member (wife or husband, son or daughter under 18 years of age, of member in good standing—no magazine) \$2.50. Life membership, \$75.00. Annual club affiliation fee \$10.00.

PRESIDENT'S CORNER

We have been requested by the New York Worlds Fair (1964 and 1965) to hold an International Bench Rest Match with invitations extended to all countries in the World. At our winter meeting this was discussed and Mr. Charles Kingsley has been appointed as contact man. Mr. Kingsley has been in touch with the Sports Committee and learned that there is no outside shooting planned on the Fair grounds. The location of the Fair in a populated area makes this impractical. They propose that regular ranges where various types of shooting events are held be used and that the match be held under a joint arrangement between the Shooting and Worlds Fair organizations. Just how this can be worked out is not known at this time. I understand that the N. R. A. is working with the W. F. Sports Committee to develop a workable basis. If and when they do we will be advised and we will see if a workable set up can be made for the N. B. R. S. A.

As you have noted in the February issue, the National Championship Matches at Tulsa, Oklahoma will be held the last four days of September. This should be a more pleasant date for the matches to be held. The extreme heat at our last National at Tulsa was most uncomfortable and many felt that they would not return for another match in the hot weather. I feel the Tulsa Club made a wise choice of

dates. We should do our best to attend this match and give them our support.

This Championship Match will be held in the two classes as defined in our rule book. You will be able to register in the class of your choice and you may shoot for record only or shoot for the prize money in your class. There will be complete aggregates computed for each class. **The National Champion, the 100 yard Champion, the 200 yard Champion and Top-Twenty will be awarded to the best aggregates REGARDLESS of CLASS.**

The registering and scoring will be under the control of an official statistician and one official scorer, employed by your National Organization. Targets will be scored promptly and scores posted as the match progresses. The statistician will develop a standard form for reporting National Championship Matches. This will be reviewed by the Directors and when approved will become a part of our rules.

This is being done by your directors to reduce errors to a minimum, standardize the method of match reporting and issue a report of the match as promptly as is possible.

This is the match where you meet your friends from East to West, exchange ideas, compete with each other, and make new friends. Plan your vacation to take in our National Championship Match.

Until April,

Bob Hart

CHARLES HART TROPHY WITHDRAWN

The Charles Hart Memorial Trophy competition for bench rest rifle teams has been discontinued and the Trophy withdrawn. The number of teams competing for this rotating trophy (and annual keeper awards) have been so few (only two teams in 1961) that continuation of the annual match does not seem warranted. **There will not be any Hart Trophy match in 1962.**

HE WILL BE MISSED

To Fellow Bench Rest Shooters:

I am going to have to give up **Competitive Match Shooting**. The reason is that my driving license is now restricted to daylight only. This would necessitate my being away from business four days each time a match came along, and this I cannot do.

I wish to thank each of you shooters who in the past have been good comrades. Each competitor has somewhere along the line lent a helping hand, and shared some little secret. I thank our God that it has been my privilege to shoot with the members of the NBRSA since 1956.

Thanks and sincerely yours,

Maurice S. Wood
Pine Road, Mt. Route
Mt. Holly Springs, Pa.

(Editor's note: Well liked by all and a most worthy competitor, "Woody" will be sorely missed at the matches by his host of friends. But we feel sure the sincere regret of his friends cannot in any measure match that of Woody's in having to give up the shooting and meetings with friends that have given him so much pleasure.)

NEW NATIONAL CHAMPIONSHIP FEATURES

As announced in the "PRESIDENT'S CORNER," the National Bench Rest Shooters Association, Inc. will appoint and employ one official statistician and one official scorer who will be responsible for the scoring and statistics at both the National

1962 BENCH REST MATCHES

EASTERN REGION

UNRESTRICTED RIFLES

Augusta, Ohio: April 14-15, June 2-3, June 30-July 1, July 28 (night), August 18-19, September 15-16. Reed's Run Rifle Range, P. O. Box 66, Augusta, Ohio.

Wapwallopen, Pa.: May 26-27; July 21-22. Council Cup Rifle Range, Robert W. Hart, 332 Montgomery St., Nescopeck, Pa.

Easton, Ohio: June 16-17 (State Championship). Chippewa Rifle Club, Nelson Berger, Sec'y, R. D. 1, Box 192, Marshallville, Ohio.

Southboro, Mass.: June 17; August 5; October 14. Southboro Rod & Gun Club, J. W. Baldwin, P. O. Box 402, Westboro, Mass.

Plainfield, N. H.: June 3 and Sept. 16; Plainfield Rifle Club, Leslie Stone, Sec'y, Plainfield, N. H.

Lewistown, Pa.: July 7-8. East End Blue Rock & Sportsmen's Club, P. J. Aurand, Milroy, Pa.

Johnstown, N. Y.: September 1-2; Eastern Region Championship. Pine Tree Rifle Club, Edward J. Sweeney, 501 N. Market St., Johnstown, N. Y.

VARMINT & SPORTER RIFLES

Augusta, Ohio: May 5-6. Reed's Run Rifle Range, P. O. Box 66, Augusta, Ohio.

Fassett, Pa.: May 13; June 9-10 (Pa. State Championship); July 4; July 29. South Creek Rod & Gun Club, Gerald Arnold, Sec'y, R. D. #2, Gillett, Pa.

Dryden, N. Y.: May 20; June 23-24 (N. Y. State Championship); September 23. Dryden Fish & Game Club, Edward Shilen, Dryden, N. Y.

Easton, Ohio: July 14-15 (Eastern Region Championship). Chippewa Rifle Club, Nelson Berger, Sec'y, R. D. 1, Box 192, Marshallville, Ohio.

Wapwallopen, Pa.: August 10-11-12 NATIONAL CHAMPIONSHIPS. Council Cup Rifle Range, Robert W. Hart, 332 Montgomery St., Nescopeck, Pa.

GULF COAST REGION

San Angelo, Texas: June 2 and 3; State Championship Varmint and Sporter Class. August 25 and 26; State Championship Unrestricted Rifle—Limited Class—plus Varmint and Sporter Class matches. Texas Bench Rest Shooters Association, Marie Spencer, Sec'y, P. O. Box 1243, San Angelo, Texas.

SOUTHWEST REGION

Modesto, Calif.: Apr. 15; Non-registered 200 yard shoot, Modesto Rifle Club, contact Duane Jenner, 1944 Ralston Court, Modesto, Calif.

Richmond, Calif.: May 5 (night shoot), July 7-8 (California State Championship); Richmond Rod & Gun Club; contact John B. Sweany, 187A Silverado Trail, Calistoga, Calif.

Yreka, Calif.: June 2-3 (Annual Memorial Day Shoot), Sept. 1-2 (West Coast Championship). Both shoots for Unrestricted Rifle, open and limited divisions, and both Varmint Classes. Yreka Rifle Club, contact Ray E. Jones, 508 Knapp St., Yreka, Calif.

Fresno, Calif.: Oct. 20-21 (Regional Championship); Fresno Rifle Club, Mrs. Henry C. Wright, Sec'y, 4663 East Olive, Fresno 2, Calif.

Miami, Arizona: April 28 and 29; Miami Rifle and Pistol Club, contact Frank Minucci, Box 1354, Globe, Arizona.

Varmint and Sporter Rifle Championships and the National Unrestricted Bench Rest Rifle Championships in 1962.

At the National Unrestricted Rifle Championships the competitors will be registered in the "Open" and "Limited" divisions, according to resting methods used, and separate match and daily aggregate award schedules will be in effect for each division. However, the National Bench Rest Champion, the 100 yard champion, the 200 yard champion and the "TOP-TWENTY" award winners will be "over-all winners," regardless of type of rests (permitted by rules) that are used.

These two new features for 1962 were submitted to the NBRSA Directors for vote and both were approved by a majority of the Directors.

P. H. T.

General Questionnaire For Shooters

(Not limited to Benchrest Shooters)

Are you a member of NBRSA?

Yes

No

(It's open to all and you are welcome)

Were you once a member? If so, what years?

Would you care for more information
about joining its activities, etc.?

Yes

No

Is your main interest in shooting—Experimental—— General—— Competitive——

Is a Benchrest youth participation program
feasible in your area?

Yes

No

There are currently five classes of rifles used.

Please indicate the order of your interest: viz 1 2 3 etc.

OPEN CLASS—Mechanical rests authorized and no limits to
weight, size or shape of rifle. _____

LIMITED CLASS—No mechanical adjustment to actuate
soft rear sand bag. _____

HEAVY VARMINT RIFLE—Sand bags front and rear,
13½ lb. weight limit (including scope), barrel
and stock dimensions limited. _____

LIGHT VARMINT RIFLE—Sand bags, maximum scope power
16X, 10½ lb. maximum weight, barrel and
stock limitations. _____

SPORTER RIFLE—Sand bags, maximum scope power 8X, 23 cal.
or larger, maximum weight 10½ lbs. barrel
and stock limitations _____

Do you favor the following?

- A. For the above rifle classes; a change in designation (name) _____
Additional limitations _____ Regrouping _____
- B. Shooting for score as well as group in the varmint and sporter classes with
second place award of the highest scorer. Yes No
- C. Separate statistics, comparative standing of competitors and proportional
distribution of awards for the heavy class rifles in all large NBRSA spon-
sored matches? Yes No

IMPORTANT: Please use separate sheet for remarks and ideas which may be a help
in making benchrest shooting a more interesting activity.

Tear out and mail this page promptly

to: Mr. A. H. Angerman

2528 Deepwood Drive

Wilmington 3, Delaware

Print your name and address clearly

Name

Street

City State

MORE ON BULLET JACKET REAMING

By Paul O. Gottschall

I have something to add to my bullet jacket Boring set-up. First, let me say that the farther I go with this the more slight variables crop up.

Apparently the very first jackets tried must have been the most uniform I was to encounter. Since sending you the first story I have made a jacket sizing die, such as Biehler & Astles had to make in the early days of the "expanding-up" bullet making system. In those days the jackets available were often full size (diameter) to start with, and had to be sized under-size as a first operation, before inserting the cores, thus permitting the expanding-up system to follow.

I am sure Biehler & Astles will make such dies again to customer specification. My own die is honed to .2216" and by pushing all my jackets through this die my troubles are practically over.

With the sizing die honed to .2216", the jackets come through about .2217" to .2218", depending on how large they were at the beginning. Some run .2228" as received. Very few go as small as .2216".

The Bushings in the spindle nose are now .2219" and I have stopped using the neoprene O ring. Trouble with the O ring was that it failed after about 200 jackets and was no good—PERIOD. But the darn thing really works now and I am sure lots of fellows will find the set-up entirely practical; just the friction fit in the hardened bushings. A few jackets will be snug enough to require a stiff enough push to make for sore thumbs, but not many. I just run everything with one set of bushings.

I have made up a carbide tool since last letter and have turned over 5,000 jackets so far (with carbide tool). Turned over 2,000 without adjustment, with .0001" to .0002" wall thickness variation, at the rate of almost 500 per hour.

BULLET DIAMETER

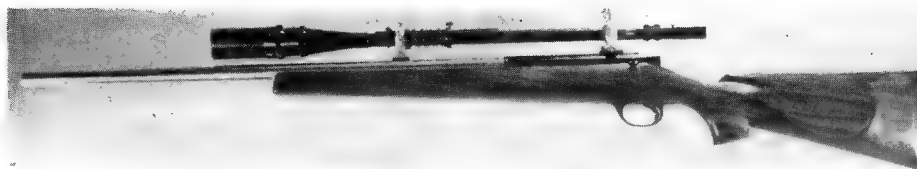
By Ed Shilen

For some reason I can't explain, the shooters are again becoming "fussy" about bore diameter of the barrel in relationship to bullet diameter, and as a result are going to drive the barrel makers out of their minds asking for barrels that are within .0001" of the size their bullets are. Because of this I have been going around measuring everyone's bullets that I can get my hands on and at the same time asking the maker of the bullets what diameter he has measured them at. I have found out that not some, BUT THE MAJORITY of the shooters don't know how to correctly measure the diameter of a bullet.

This all adds up to the humorous situation (although not the least bit funny to the barrel-makers) that the guys are ordering barrels within .0001" and they aren't measuring their bullets correctly to within .0005". Some of the bullets that I have measured the maker was off .001" in his measurement. This situation also seems to prove that the fit of the bullet in the bore isn't nearly as important as a lot of the shooters believe it to be.

In the February 1959 issue of Precision Shooting was an article written by Paul Gottschall regarding bullets and the measurement of same. For the benefit of those who didn't read this fine article, and for the more recent subscribers to P. S., I would like to repeat some of the things that Paul said in that article.

The correct place to measure the bullet is about $\frac{1}{8}$ inch AHEAD of the base, NOT ON THE BASE. For best results



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I would recommend that this part of the bullet not be more than .0001" over or .0005" under bore size. The pressure bulge which is common on our hand made bullets CAN BE AS MUCH AS .0007" OVER bore size and do no harm. As Paul pointed out in his article, the bullets will usually shoot better if this bulge IS larger than bore size.

BEGINNERS CORNER

By Robert Stinehour

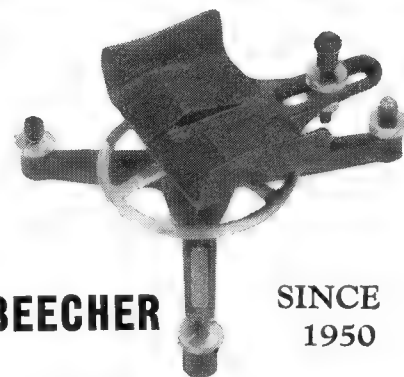
After sitting back for several issues and letting "George" do it (the writing), I have got to stop being lazy and help him. Several recent articles have given me inspiration for the following remarks.

I especially enjoyed Roy Dunlap's column in the January issue for though his remarks were terse, they hit the nail pretty much on the head.

Ed Shlien's article (Dec. issue) "On Barrels, Actions and Stocks" gave me much food for thought. On most things Ed and I pretty much agree, though our methods of achieving results vary. I am one of the ones Ed refers to as preferring to bed some barrel forward of the receiver. Since I am used to sticking my neck out, as Ed wouldn't do, mine is out again. From my experiments in bedding it is my opinion that if a barrel will not shoot free-floating (in the breeze, as Ed says), it will not shoot with any barrel bedding. This is of course, if the action being used is of proper design and strength to hold said barrel. Some actions, such as the FN, Sako, etc., have the forward guard screw very close to the front of the action, with the action flat aft of the screw and what little bit is forward is round. With a heavy barrel "in the breeze" on such an action, few stocks will hold up in the bedding forward of the screw, so an inch or two of barrel bedding is a must, on these jobs, to my way of thinking.

The most recent rifle I really experimented with is the one that I now am using as a chucker. It has an Apex barrel 26" long and .875" at muzzle, short Mex. Mauser action, and was chambered for the .219 Don. I spent many hours on this job with changing bedding and nothing else.

(Continued on Page Twelve)



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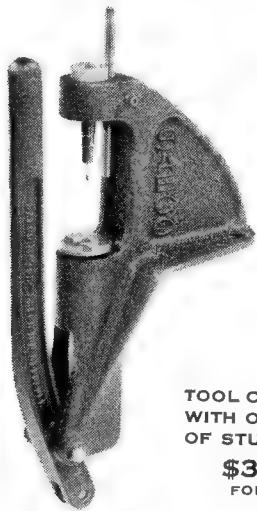
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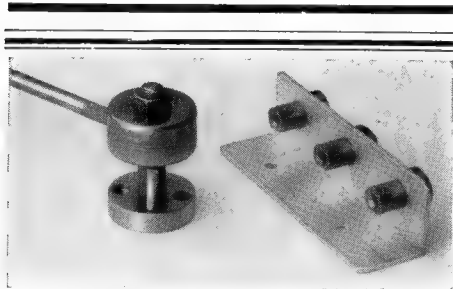
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MARIAN POWLEY

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(Continued from Page Eleven)

It started out as perfectly bedded, barrel and action, full length, as I could get it. Test firing gave .600" to .700". Tied the barrel down at node point. Tested. Still .600" to .700". Held 2" of barrel bedding forward of action and held bedding at node point; tested with and without barrel band at node—still .600" to .700".

The barrel band was removed, the barrel full floated except for 1" forward of the action, and the groups were exactly the same. What surprised me the most was that the point of impact hardly varied with the different changes of bedding. Now, I could have floated the barrel entirely, but am sure that the groups would have enlarged; this action having little bearing forward of the front guard screw, as aforementioned.

It just was not a "competition" varmint outfit. So, I lightened the stock considerably, had Russ put the .22/250 reamer in it, and still have a .600" to .700" chuck rifle, which is good enough for me.

This rifle convinced me, as many others have, that some "have it" and some haven't, and no amount of puttering can get any more accuracy out of a rifle than the barrel, action, etc., are capable of. So like Ed says, many people have stock troubles, but I suggest not blaming all ills on the stock, or the stocker.

While on the subject of the stocker, something I have long wanted to say comes to mind. I do not think the stocker lives who is foolish enough to think that his "perfect" bedding job on any stock will never need checking. A stocker can deliver a perfect job and it may not be perfect six months later, regardless of whose job it is. If it has been done by a competent person, though, and the owner is not capable of "checking" it (by checking it I mean scraping a possible high spot) he should have the original stocker or another competent person check it. You won't believe it but I have seen a factory job that the owner cut the recoil lug bearing surface back at least $\frac{1}{8}$ ", because he thought it touched too hard there. I'm sure glad I saw it in another fellow's shop.

While on the subject of recoil lugs, I would like to pass on what I think is some good dope. In the past, many have thought, and written, that the recoil lug should bear only on the recoiling surface; that is to say, to the rear. For some time I have been bedding new stocks with the lug hitting on all four sides—and it works! If one keeps the lug contacting thus, and keeps the lug mortise at a true 90° from the top of the stock, it is much easier to get a bedding job without "spring." By keeping the lug snug, especially front and rear, and installing and removing the barreled action, during the inletting, straight up and down, one gets no "false contacts" and comes out with a good bedding job. On several factory rifles I have glassed only the recoil area, scraped the bottom of the recoil area and the front and sides only slightly, enough to make removing the barreled action easier; then touched the rest of the bedding a little, and immensely improved the accuracy on some.

Tch, tch, Mr. Shilne. You said of the flat bottomed actions, the Mod. 70 gives you the least trouble in stocking. With most of us, I believe the opposite is so. I know I prefer to do FN or Mauser. I mean I can do them quicker. Now, it depends on how much action contact to the stock one wants. On the FN type the ac-

tion bottom is flat back to the tang. On the Mod. 70 you have an upper and lower level bearing in the rear section; the lower level being flat and the upper level and tang being round. If a stocker contacts both these surfaces properly, it takes more time and effort. If it is going to be bedded only on the upper round surface, as most factory jobs are, then I can agree with you.

I wonder how many hunters who like the side safeties on many of the rifles now on the market realize how much wood has to be removed to accommodate this safety. On some of these jobs there is little enough bearing surface to wood in the tang without this "safety." I use quotation marks on safety because I have had some excellent demonstrations from a couple of competent riflemen on just how "unsafe" these can be in some circumstances. While the old Buehler type safety, on the cocking piece, is perhaps not so eye appealing, it is certainly more practical all around, to my way of thinking.

As for cocking pieces; on the FN and Mauser, if the tang has settled in the stock enough to cause the cocking piece to contact the stock, and ride on it, accuracy will fall off. This is very often overlooked on many rifles. It is more desirable that the action be so designed that the cocking piece does not protrude over the sides of the tang, such as the Sako.

Speaking of the Sako, I had a chance to go over one of the new Finn Bear rifles (.338) in my shop the past week. I am fortunate enough to have a friend close by who buys nearly every rifle that comes on the market, brings them by and we go over them together, looking for good and bad points. This one did not give us much to gripe about. The only fault we can find is the afore-mentioned safety and the "square" cheek-piece on the stock (easily remediable).

Unlike most cross-bolted stocks, which just have the bolt through the area to the rear of the lug, this one is precisely done so that the lug "rides" on this bolt. The square of this bolt forms the recoil surface, $\frac{1}{4}$ " deep across the whole lug bearing surface. It is very nicely done and a split stock would be practically an impossibility.

The workmanship is high quality for a production rifle, and though the inletting shows no sign of hand tools, this one needed none. I would give this bum leg of mine to be able to anywhere near duplicate this inletting on my machine.

Ernest Stuhlschuter's comments on hunting scopes (Dec. issue) were of course very interesting to me. They brought to mind a shot I made in Vermont 4 or 5 years ago, which he, Merrie and my son witnessed. We have never bragged too much about this "scope killed" buck for fear most people would not believe it. Perhaps most of the credit should go to my old "Meat Gun" (6.5X.257) for this is the only rifle I have ever owned that has still brought home everything "shot at." Anyway, four deer were running nearly dead away from us, with the small buck in the rear. We were on a heavily wooded slope when I looked way up ahead, out through the tree tops to an open area, and there they were running up across it. I drew down on the buck, offhand of course since there was no time to do otherwise, and touched off the shot. I must honestly say I was conscious of taking lead and elevation, but I do not know how much. A once in a lifetime

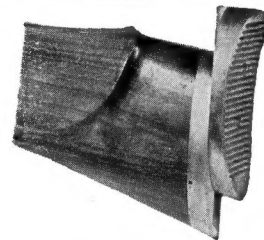
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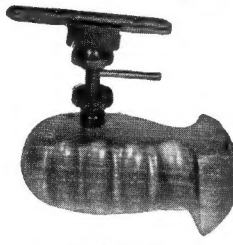


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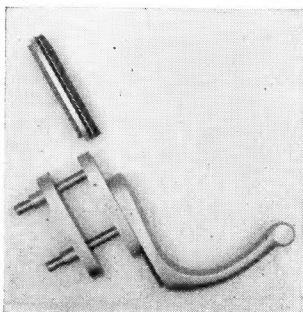
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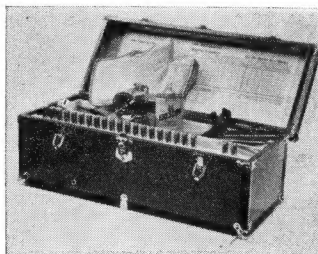
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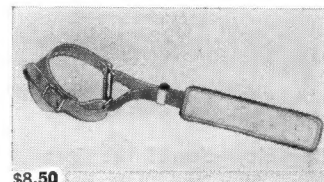
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It is my opinion that a shooter who only uses a scope once a year in the deer woods, is handicapped with it, but if he uses one throughout the year, on a little target work, or chucking, then he is accustomed to it and it will be advantageous.

I was about to close this article when on re-reading I see at least one place where I might be misunderstood (which has hap-

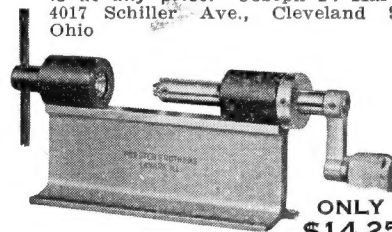
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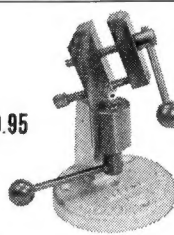
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pened before. Re: bedding or floating barrels. Some might think I meant that a barrel **must** be "in the breeze" to shoot its best. This is not what I meant, for a good

barrel will shoot equally as well bedded **properly** as it will floating. What I meant was that no amount of proper bedding will make a mediocre barrel shoot first rate.

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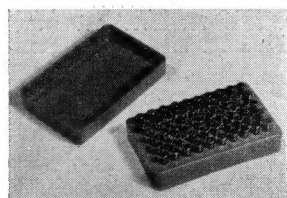
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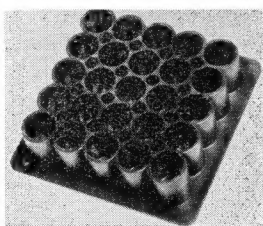


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(Continued from Page Seven)
can remember the weights of odd shapes and sizes which were hung on the end of barrels. About the same time, we saw barrels cut off in a sharp cone shape and now we are seeing a tendency toward fluting

them. The Douglas-Clark barrel clamp idea came in and went out and last year Ferris Pindel and Cline Deere showed up with a refined model and they each were making some pretty good targets at Johnstown.

Of course, Paul's idea goes back nearly

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a generation to one that Jonas Hallgrimson brought to our attention when he discovered that bullet jackets varied considerably in thickness of their wall section. His efforts were directed toward reaming them out and he has worked on that idea throughout the years but he, and every other shooter is faced with the tiny dimensions which are left subject to correction after receiving the jackets from the manufacturer. For many years, I have been measuring the jackets and rejecting those which do not come within the limits I like. Some lots run more uniform than others but that doesn't mean much because the matches are won or lost by perhaps as little as one bad shot out of one hundred so we have to try to cull out the bad jacket before it is made up into a bullet. I can just imagine what a beautiful job Paul has done with his machine and I would like to duplicate it but I just don't have either the ability or the equipment to do such precise work. Paul has one characteristic that we love him for and that is his often demonstrated willingness to let others in at the early stages of his experiments. He would not want to win because of some advantage that he alone possessed and I have known him long enough to know that when he is convinced that an idea is not proving advantageous, he is every bit as willing to abandon the idea and tell us that it didn't work out well.

I have used hours at a drawing board and fiddling around in my shop recently, making a power measuring device for the jackets. For me, this is always interesting work. I can mull over the schemes in my mind and convert them on the drawing board, but the finished results rarely look like my drawing. This is usually because I have enough Scotch in my system to make me miserly about using new material and I invariably end up by compromising the drawing and utilizing in the finished article parts of gadgets from odds and ends that I collect.

I have also been fooling a lot with a new aiming point, for the last month or so, and a new target and shooting game that I think will work out very nicely for our accurate rifles and modern telescopes. It has the merit of not requiring a backing target and it also puts the accent on having your bullet hold and point of aim come as closely as possible to coinciding. The time for firing is cut down and as far as I can see now, the hassle between rifle classes will be eliminated. Perhaps by the next issue, all the bugs will be cooked out of the idea except for a few that are intentionally left in. I am even toying with the idea of inviting those within rolling distance to come down to the Cape and test hop some of the features that I have in mind. We could all have a good time and Cape Cod is a mighty delightful place in May. There is ten acres

(Continued on Page Fifteen)

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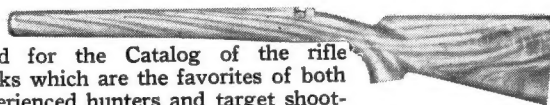
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8X VULTURE. Also Weaver V-8 Mounts.
F. Moore, 5892 Dam Road, Richmond, Cal-
ifornia.

Stool Shootin Stuff

(Continued from Page Fourteen)

of parking space and Merrie thinks the
women folk would enjoy themselves
whether they worry about their husband's
scores or do some of the other interesting
things that are available.

Cordially yours,

Ernst Stuebelchuter

"NOT NECESSARILY SO"

In the past we have called attention to
various shooting beliefs as being "not neces-
sarily so" under all circumstances. A re-
cent experience has put me in the position
of having to back water and admit that one
of my own pet beliefs is also "not neces-
sarily so."

Some time in the past I reported doing
some experimenting with shooting rifle
cartridge cases with split necks for effect on
accuracy. My experience at that time and
subsequently indicated that shots from split
neck cases did not print outside the normal
group for the rifle and load being used.
Merely to find out what effect split necks
might have on accuracy. I shot some cases
with split necks, mixed with good cases, for
as long as the necks had tension enough left
to hold the bullets. In any of the calibers
I shoot (.219 Don through 30/06) I never
could detect that the split necks caused
wide shots in a group. I believe I once
stated in print that I considered blaming
wide shots on split neck cases to be a rather
weak alibi. All the experience from which
this belief was based was gained in shooting
normal full loads with jacketed bullets in the
various calibers.

Recently, to make a little test for ac-
curacy of scope adjustments, I used a re-
duced load of 18 grs. 4759 powder with
home-made 83 gr. jacketed bullets in a .257
Roberts sporter. This load in this rifle
gives normal 1 to 1½ minute-of-angle ac-
curacy. The cases used were old ones and
in the 40 cases loaded there were 8 or 10
with split necks, ranging from beginning
splits to splits that extended ¾ the length
of the neck. They were loaded deliber-
ately without a worry as to accuracy.

In shooting these cartridges, wide shots
started to crop up. After a few of these,
and checking as others occurred, the wide
shots were found to come from the split
neck cases, and the wideness of the shots
was generally proportional to the serious-
ness of the neck split. So, one more "not
necessarily so" episode.

P. H. T.

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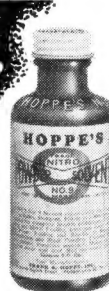
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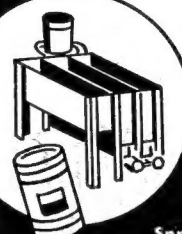
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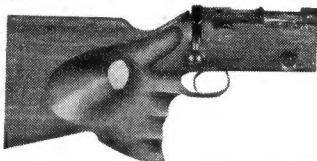
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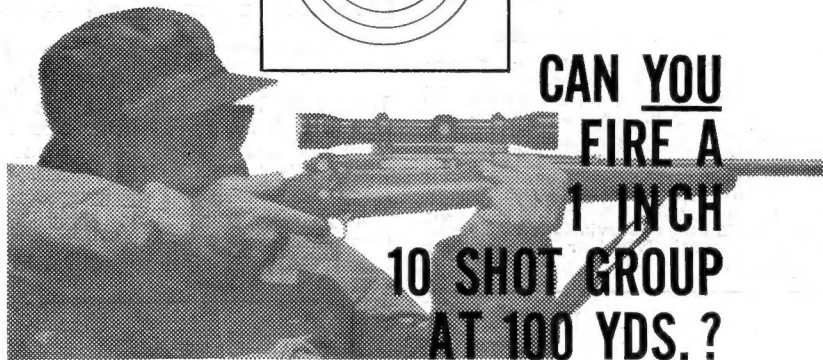
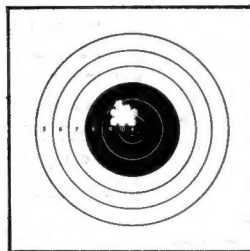
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